GH Phipps CONSTRUCTION COMPANIES

496 Nevada Mesa View
Colorado Springs, CO 80907-4347
719-633-4673
719-471-3169 (fax)

TRANSMITTAL

No. 13D1258-0009

PROJECT: HCMRO-HCR Management Office

DATE: 12/12/2012

TO: Tenant Planning Services
450 Decatur St
Denver CO 80204

RE: 15800-HVAC

ATTN: Chuck Nichols

Ph/Fax:

JOB: 13D1258

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☐ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☑ Specifications / Product Data	☑ Attached	☐ Returned for Corrections
☐ Other:	☐ Separate Cover Via:	☐ Due Date:

NOTES:

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal	15800	15800	1	1	12/12/2012	HVAC Equipment & Controls	Architect Review

CC:

Signed: _____

Michael Beaudoin

Submittal Stamp Sheet

Project: Healthcare Realty Management Office
Phipps' Job #: 13D1258
Submittal #: 15800.01

Tenant Planning Services
450 Decatur Street
Denver, CO 80204

Gerald H. Phipps, Inc.:	Architect:
SUBMITTED ***GH Phipps*** *Construction Companies* GH Phipps has reviewed, approved, and herby submits the attached in accordance with the contract documents. Note to Subcontractor/Material Supplier: Subcontractor/Material Supplier remains responsible for the confirmation and correlation of dimensions at the jobsite; fabrication processes and construction techniques; coordination of the work with the work of other trades; and satisfactory performance of the work.	
Engineer:	Other:

NOTES:

Signed: M.Beaudoin
GH Phipps Representative

PennBarry Submittal

Date Print: 12/7/2012

PENNBARRY

JOB NAME: HCR Management

ENGINEER: MEP

CONTRACTOR: Marx Aire
CONTACT:

SUBMITTED BY: Luke Eha
Air Purification Company
1861 West 64th Lane
Denver CO 80221
PHONE: 303-428-2800
FAX: 303-428-2700
EMAIL: leha@airpurificationcompany.com

General Fan Schedule

Job Name: HCR Management

Job Notes:

PENN BARRY

Tag /Mark	TF-1				
QTY	1				
Product Line	Zephyr				
Model	ZJ1				
Drive	VarSpd				
Flow Rate- (CFM)	150				
SP - ("w.g.)	0.30				
Temperature - (F)	70				
Altitude - (ft.)	5000				
RPM	1133				
BHP/Watts	125.00				
Motor	1/18 HP 115/1/60 Open				
Tip Speed - (ft/min)	1853				
Inlet Vel (ft/min)	214				
Outlet Vel (ft/min)	682				
SE%	0.00				
ME%	0.00				
Sones	3.66				
NC	40				
dBA	44				
Mounting Position	Ceiling Right Angle Discharge				
Application	Exhaust				
Fan Notes					
Ro/Opng - (in)	0.00				
Dmpr.O.D.(in)	0.00				
Shipping W. - (lbs)	15				
Accessories:					
1	Lek-Trol Electronic Speed Controller				
2	Square to Round Transition				
3	Thermal Overload Protection				
4	COOLING T-STAT				
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Specials:					

AMCA License

Job Name: HCR Management

Job Notes:

Tag / Mark	Product Line	Model	Tag / Mark	Product Line	Model
TF-1	Zephyr	ZJ1			

PENNBARRY

PennBarry certifies that the model shown is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Performance shown is for installation type A - Free inlet, Free outlet.Speed (RPM) shown is nominal. Performance shown is based on actual speed of test.Performance ratings include the effects of inlet grille and back draft damper in the airstream.The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for Installation Type B: free inlet fan sone levels.The sound power level ratings shown are in decibels, referred to 10-12 watts calculated per AMCA Standard 301.Values shown are for inlet LWi sound power levels for Installation Type B: free inlet, ducted outlet. Ratings do not include the effects of duct end reflection.The AMCA Certified Ratings Seal applies to air performance ratings onlyThe AMCA certified ratings program applies to sones and full octave band sound power levels only.

PennBarry
1401 N. Plano Road
Richardson, TX 75081

Job Name: HCR Management
Tag / Mark: TF-1
Date: 12/7/2012

VARSPD DRIVE FORWARD CURVED CEILING EXHAUST FAN

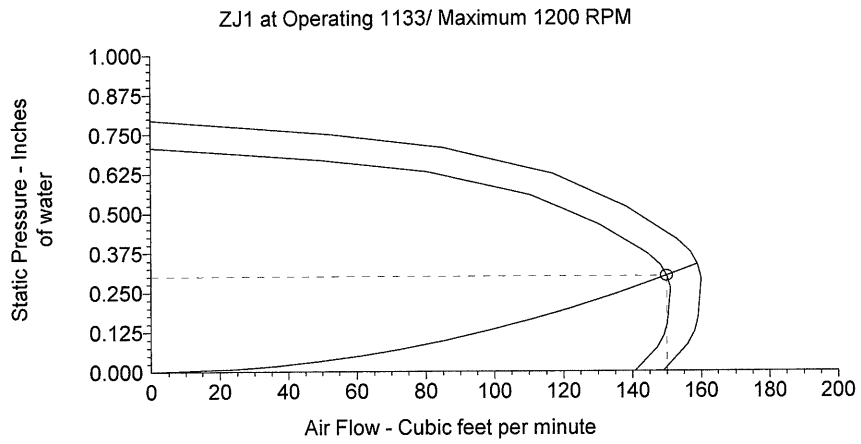
PERFORMANCE						
Qty	Model	Volume (CFM)	SP (in. w.c.)	RPM	BHP/Watts	TipSpeed
1	ZJ1	150	0.30	1,133	125.00	1,853

MOTOR INFORMATION		
Motor HP	Volt/Ph/Hz	Enclosure
1/18	115/1/60	Open

DIMENSIONS		
Damper Size (in.)	Ro\Opng (in.)	Shipping Wgt. (lbs)
0X0	N/A	15

amca CERTIFIED RATINGS
AIR PERFORMANCE
AIR MOVEMENT AND CONTROL ASSOCIATION, INC.

SOUND POWER (dB re 10^{-12})								NC	Dba	Sones
OCTAVE POWER CENTER FREQUENCY (hz)										
63	125	250	500	1000	2000	4000	8000			
67	67	56	48	48	40	35	33	40	44	3.7



Accessories:
1) Lek-Trol Electronic Speed Controller
2) Square to Round Transition
3) Thermal Overload Protection

PennBarry
1401 N. Plano Road,
Richardson, TX 75081

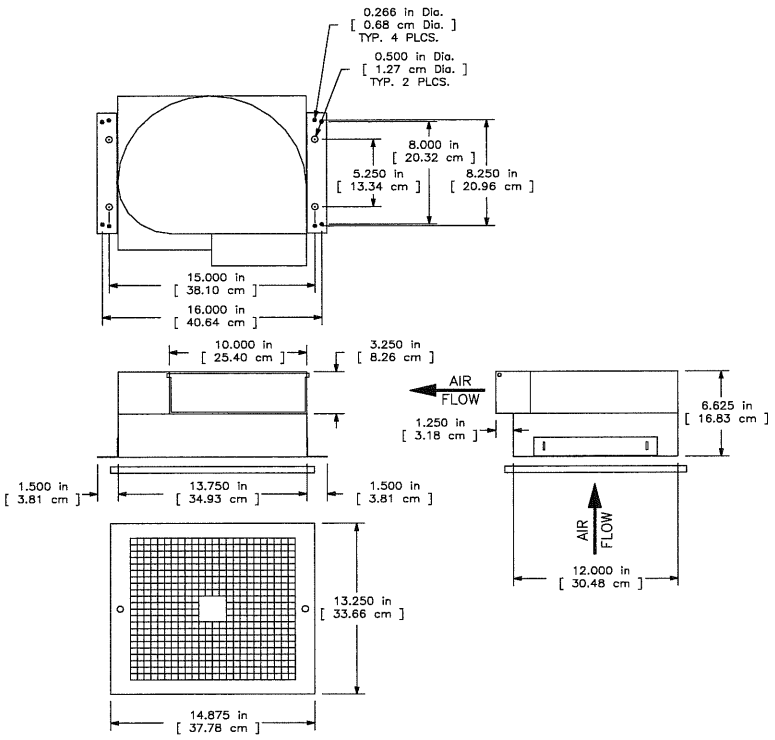
Job Name: HCR Management
Tag / Mark: TF-1
Date: 12/7/2012

VARSPD DRIVE FORWARD CURVED CEILING EXHAUST FAN

STANDARD CONSTRUCTION

Housing acoustically insulated galvanized * Forward curved centrifugal blower * Integral chatter proof backdraft damper (except Z14/15) * Face white egg crate design grille providing 85% Free Area * Motor continuous duty, with thermal overload protection, positively cooled, & mounted on vibration isolators * Includes electrical disconnect "plug" (except Z14/15) to pre-wired junction box * Fan/motor/wheel "power pack" is removable * Corrosion resistant fasteners *

Note: All Dimensions shown are in units of inches



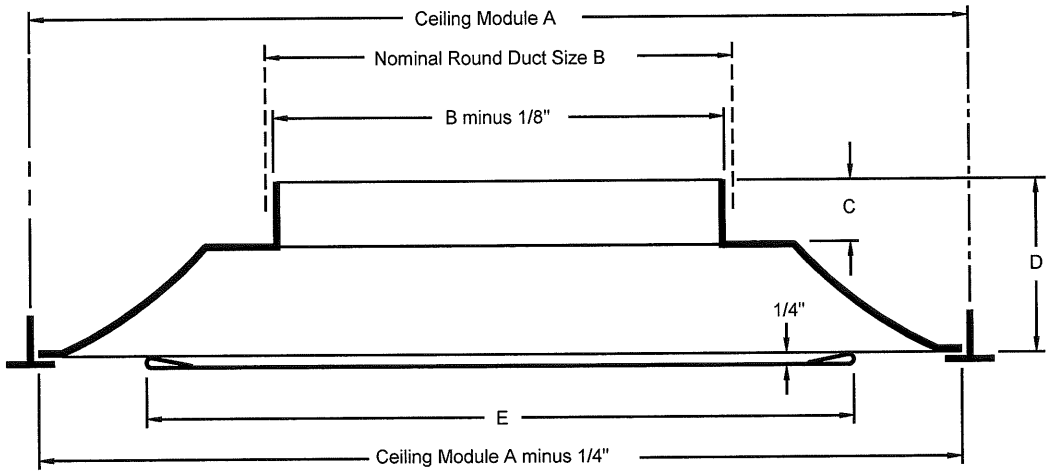
CD-1

Titus *Submittal*

D-OMNI 10-1-03

Architectural Ceiling Diffusers
Steel • Architectural • Square Panel • Horizontal Air Pattern
Model: OMNI • Round Neck

☒ **Frame Type 3 (Lay-In) Full Face.**



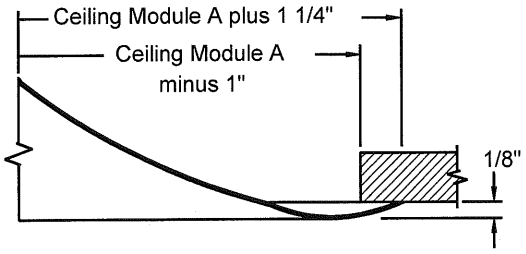
Ceiling Module A	Nominal Round Duct Sizes B	C	D	E
12 x 12	4, 5*	2 7/8	4	9
	6, 7	1 1/8	2 1/4	
	8	1 1/4	2 3/8	
24 x 24	6, 8	1 1/4	3 3/4	18
	10, 12, 14, 15	1 3/8	3 7/8	

* Adapter is provided for Sizes 4 and 5.

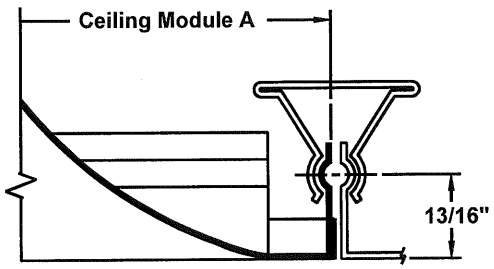
Ceiling Module	Face Size	Nominal Round Duct Sizes	Frame Types
12 x 12	12 x 12	4, 5*, 6, 7, 8	1, 2, 3, 4
24 x 24	24 x 24	6, 8, 10, 12, 14, 15	1, 2, 3, 4, 4V, 4T

Note: *Adapter is provided for sizes 4 and 5.

☐ **Frame Type 1 (Surface Mount) Full Face**



☐ **Frame Type 2 (Snap-In) Full Face or Panel Mounted**



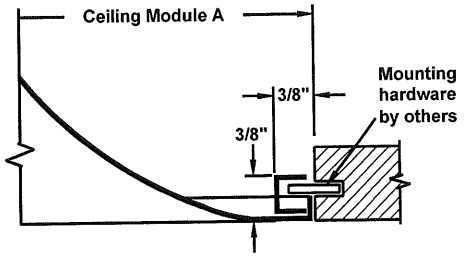
All dimensions are in inches.

(Please see reverse side.)

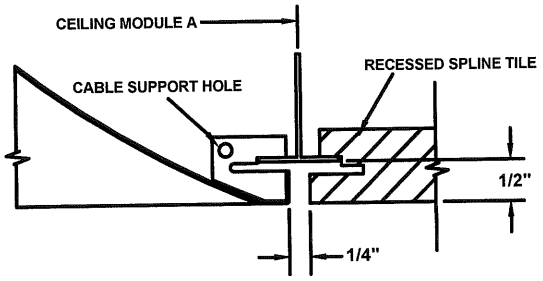
Other Available Border Types

Check selection

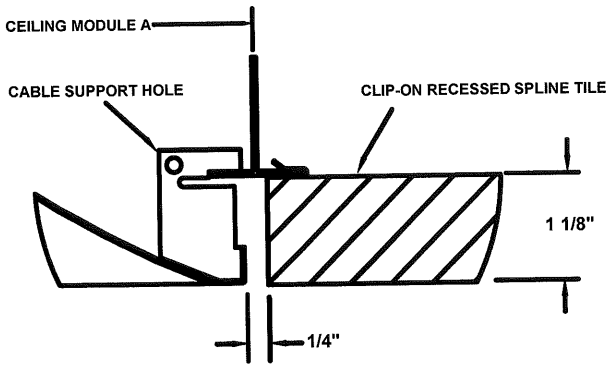
☐ **Frame Type 4 (Spline)**
Full Face or Panel Mounted



☐ **Frame Type 4V (Recessed Spline)**
Full Face



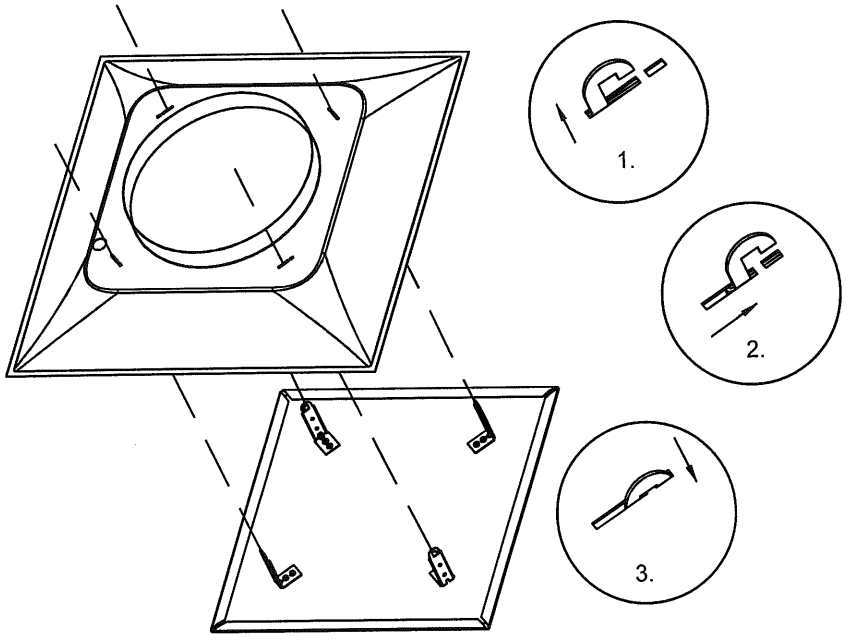
☐ **Frame Type 4T (Clip-On Recessed Spline)**
Full Face



Note: If Border 4V is adjacent to a light fixture a gap will be visible above the backpan. A t-bar extender is available to fill this void, available from the ceiling manufacturer.

Borders 4V and 4T has four mounting clips. Two clips on opposed sides with holes to attach mounting wire from above.

Installing and Removing Face Panel • Adjusting Optional Damper



Installing Face Panel

1. Insert the hook brackets into the slots in the backpan.
2. Rotate the face panel clockwise until...
3. the hooks positively engage in the secondary slots in the backpan.

Removing Face Panel

1. Lift the faceplate towards the backpan to disengage the hook brackets from the backpan slots.
2. Rotate the faceplate counter-clockwise.
3. Lower the faceplate away from the backpan.

Adjusting Optional Damper

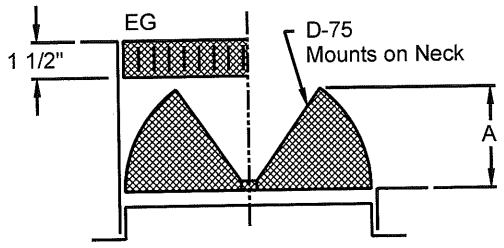
1. Remove face panel as above.
2. Use flat blade screwdriver to turn operator shaft at center of damper.
3. Replace face panel

Accessories (Optional)

☐ Check if provided

☐ **Model D-75 Radial Opposed Blade Damper**

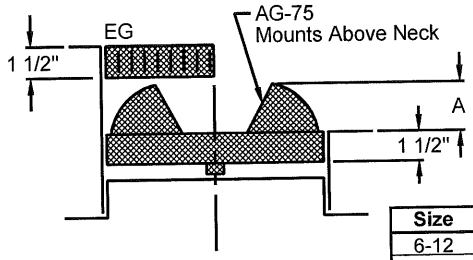
☐ **Model EG Equalizing Grid**



1 Model D-75 damper is available in duct sizes 6 thru 12 inches only.

☐ **Model AG-75 Radial Opposed Blade Damper**

☐ **Model EG Equalizing Grid**

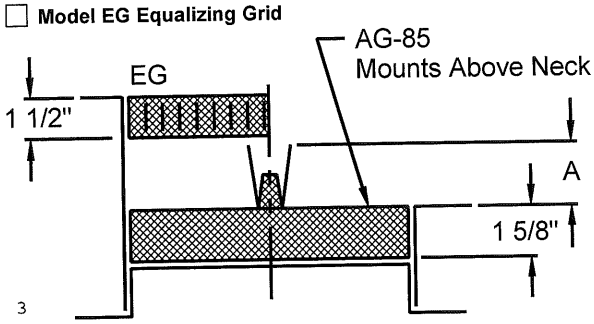


Size	B
6-12	1 1/2
14, 15	2 1/8

2 Model AG-75 damper is available in 6, 7, 8,10, 12, 14, and 15 inch duct sizes only.

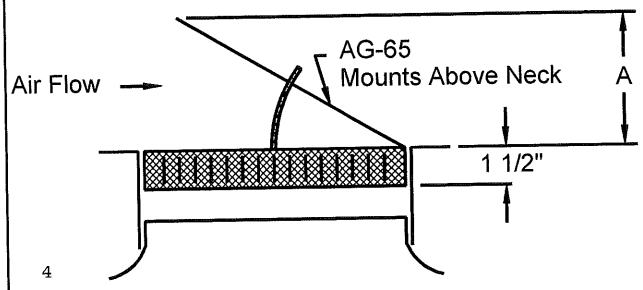
☐ **Model AG-85 Butterfly Damper**

☐ **Model EG Equalizing Grid**



3

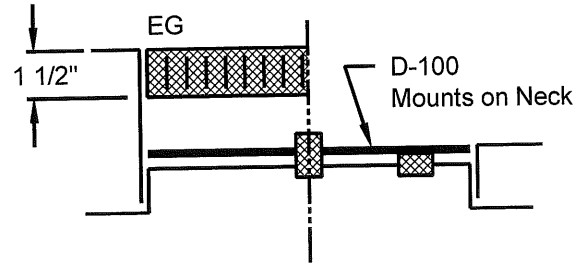
☐ **Model AG-65 Combination Damper and Equalizing Grid**



4

☐ **Model D-100 Radial Slide Blade Damper**

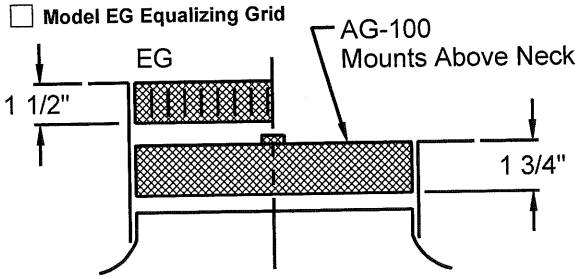
☐ **Model EG Equalizing Grid**



5 Model D-100 damper is available in duct sizes 6, 8, 10, 12 and 14 inch duct sizes only.

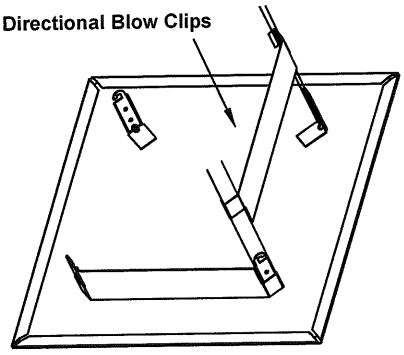
☐ **Model AG-100 Radial Sliding Blade Damper**

☐ **Model EG Equalizing Grid**

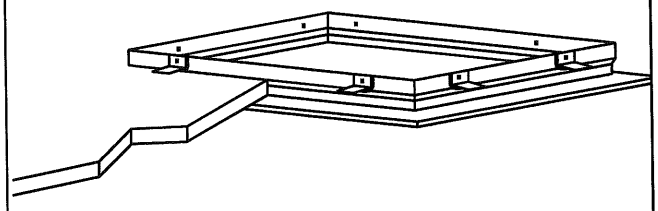


6 Model AG-100 damper is available in duct sizes 6, 8, 10, 12 and 14 inch duct sizes only.

☐ **DB - Directional Blow Clips**



☐ **TRM TITUS Rapid Mount Frame**



For Surface Mounting Border Type 3

(Please see reverse side.)

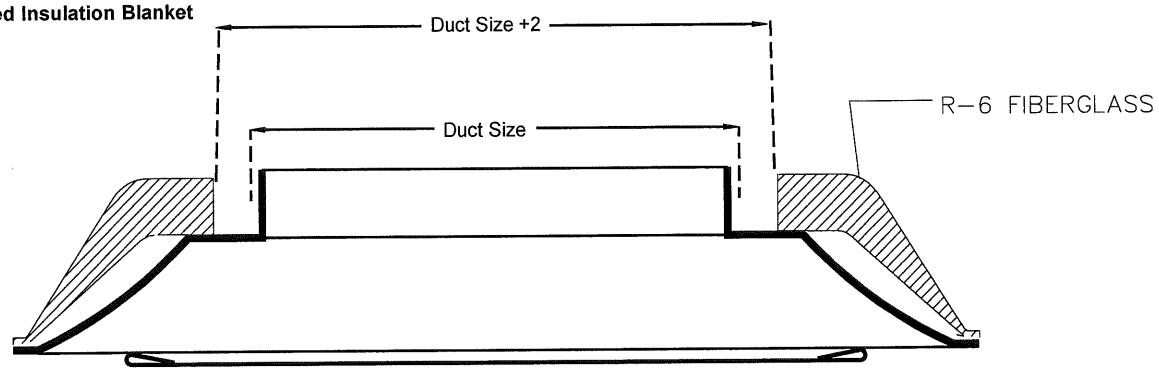
Accessories (Optional) Continued

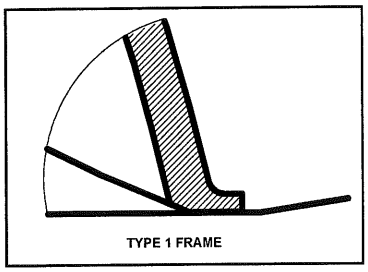
Dimension "A" in Inches, for Dampers Shown

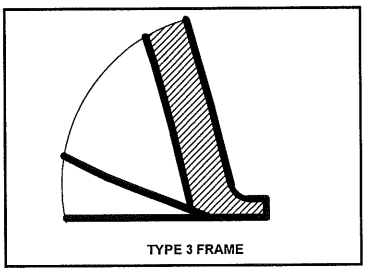
Accessories		Nominal Round Duct Sizes						
		6	7	8	10	12	14	15
1	D-75	2 3/8	2 7/8	3 1/4	4 1/8	4 7/8	N/A	N/A
2	AG-75	2 3/4	3 1/4	3 5/8	4 1/2	5 3/8	2 3/4	3
3	AG-85	2 1/2	3	3 1/2	4 1/2	5 1/2	6 1/2	7
4	AG-65	3 3/8	4	4 1/2	5 1/2	7 1/8	8 5/8	9
5	D-100	—	—	—	—	—	—	N/A
6	AG-100	—	—	—	—	—	—	N/A

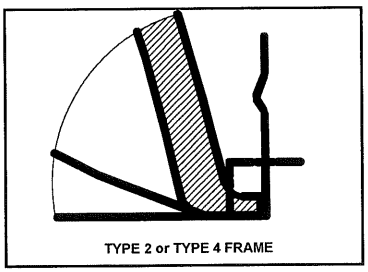
Notes 5 and 6 :
Model D-100 and AG-100 dampers have radial blades that slide in a horizontal plane. For that reason, no opening clearance "A" is dimensioned.

☐ **IB Molded Insulation Blanket**




TYPE 1 FRAME


TYPE 3 FRAME


TYPE 2 or TYPE 4 FRAME

Insulation is R-6 where blanket has the most depth. One inch clearance on each side of neck is left for insulated duct connection. 24x24 Full face models only.

Standard Finish: #26 White

General Description

• The TITUS OMNI diffuser is designed to satisfy architectural as well as engineering criteria. Its strong, clean, unobtrusive lines harmonize with the ceiling system, without sacrificing performance.

• The curvature of the OMNI backpan works with the formed edges of the face panel to deliver a 360° tight horizontal air pattern, without excessive noise or pressure drop.

• The OMNI diffuser is an excellent choice for variable volume systems. The air pattern remains tight and horizontal for effective room air distribution, even when the air volume varies over a wide range.

• The edges of the face panel are formed to a radius for solid, crisp appearance. The formed edges also stiffen the face panel and assure a straight and level surface.

• The panel can be removed from the backpan for easy installation of the diffuser or for access to the optional damper.

• Optional Directional Blow Clips (model DB) allow the air pattern to be changed to three, two or one blow direction.

• Optional molded insulation blanket (IB) with R-6 rating available for use with border styles 1, 2, 3, and 4, 24x24 full face models.

Titus Note: This submittal is meant to demonstrate general dimensions of this product. The drawings on this submittal are not meant to detail every aspect of the product with exactness. Drawings are not to scale. TITUS reserves the right to make changes without written notice.

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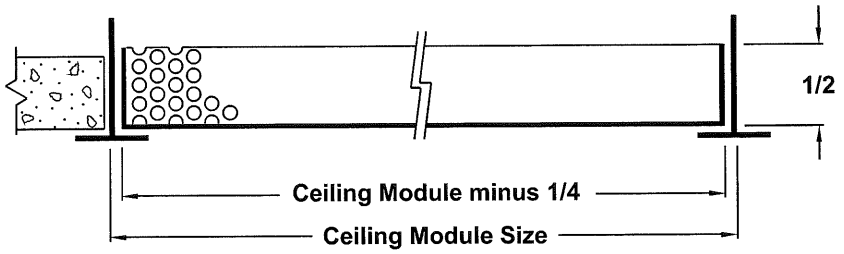
TG-1 / RG-1

TITUS® *Submittal*

D-PXP **5-1-95**

Perforated Ceiling Diffusers
Steel • Flush Face
Model: PXP • Return Panel

Tag:

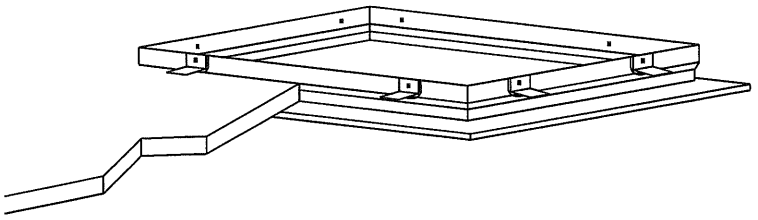


Nominal Ceiling Module Sizes Available: 12 x 12, 16 x 16, 20 x 20, 24 x 12, 24 x 24, 48 x 24

Accessories (Optional)

Check ☑ if provided

☐ **TRM TITUS Rapid Mount Frame**



For Surface Mounting Border Type 3

Standard Finish: #26 White

General Description

- Model PXP perforated panels are designed for return or exhaust applications.
- Panels match Model PAS supply diffusers in appearance after installation.
- Installed by laying between T-bars.
- Perforated face has 3/16" diameter holes on 1/4" staggered centers.
- Material is heavy gauge steel.

Note: This submittal is meant to demonstrate general dimensions of this product. The drawings on this submittal are not meant to detail every aspect of the product with exactness. Drawings are not to scale. TITUS reserves the right to make changes without written notice.

990 Security Row • Richardson, Texas 75081 • 972-699-1030 • Fax 972-918-8880

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Carrier West
4800 Osage Street
Denver, CO 80221
Ph: (303) 825-4328
Fax: (303) 820-2302

SUBMITTAL COVER SHEET

JOB: HCR Management Office
LOCATION: Colorado Springs, Colorado
CONTRACTOR: Marxaire

TAG	QTY	MODEL NUMBER	DESCRIPTION
VAV-2-16	1	35EC	Carrier Variable Air Volume Boxes with Comfort ID Controls

CARRIER WEST CERTIFIED THE ABOVE DATA TO BE A TRUE ABSTRACT OF MANUFACTURES' CURRENT RATINGS FOR THE PRODUCTS SHOWN.

DATE: **December 6, 2012**

PREPARED BY: Corey W. Trease

SUBMITTAL

☒ Performance Data
☒ Certified Dimension Print

Model: 35EC

Heater: 277 Volt – 1 Phase – 60 Hertz

Qty: 1

Tagged: VAV-2-16

Includes: 1” Liner, Hanger Kit and NonFused Door Interlocking Disconnect

Date: December 6, 2012

Performance Summary For VAV-2-16

Project: ~Untitled2 12/06/2012
Prepared By: 10:06AM

Unit Parameters

Tag Name:	**VAV-2-16**
Quantity:	**1**
Model Type:	**VAV - CCN**
Model:	**35E Single Duct Terminals**
Control Type:	**4141: CCN 1-2 Stage Electric Heat**
Unit and Inlet Size:	**8 Inch**
Part Number:	**35EC3310L080414100000S000000E4102.0L0000060001900190**
Reheat Option:	**Electric Reheat**
Outlet:	**12x10**

Unit Performance

Altitude:	**5,400**	ft
Max. Primary Airflow:	**600.0**	CFM
Min. Primary Airflow:	**190.0**	CFM
Inlet Static Pressure:	**1.000**	in wg
Downstream Static Pressure:	**0.200**	in wg
Minimum Static Pressure Drop:	**0.081**	in wg
Motor Voltage:	**4141: CCN 1-2 Stage Electric Heat**	
Note:	**Inlet Static Pressure includes downstream pressure drop.**	

Electric Heating Coil

Coil Airflow:	**190.0**	CFM
Capacity:	**6.83**	MBH
Entering Air Temp:	**55.00**	F
Leaving Air Temp:	**95.58**	F
Coil PD:	**0.007**	in wg
Voltage:	**277-1-60**	
kW:	**2.0**	kW
Steps:	**1**	
MCA:	**9.03**	
MOCP:	**10.0**	

Insulation:

Lining:	**1" Liner**
Attenuator:	**Yes**

Other Information:

Maximum Airflow:	**927.0**	CFM
Design Airflow:	**600.0**	CFM
Safety Factor:	**35**	%
Unit LxWxH:	**39.5 x 12 x 10**	

Acoustic Summary:

Sound Power Levels, dB re 10E-12 watts

Primary Airflow: **600.0** CFM

	Octave Bands (dB)						
Radiated Sound	**2**	**3**	**4**	**5**	**6**	**7**	**NC**
Primary Sound (Pwl)	55	49	45	39	36	30	*
Total Attenuation	17	18	20	23	25	26	*
Room Sound Level (Spl)	38	31	25	16	11	< 10	19
Discharge Sound							
Primary Sound (Pwl)	60	58	49	38	33	33	*
Total Attenuation	29	30	41	53	55	41	*
Room Sound Level (Spl)	31	28	< 10	< 10	< 10	< 10	14

Notes:

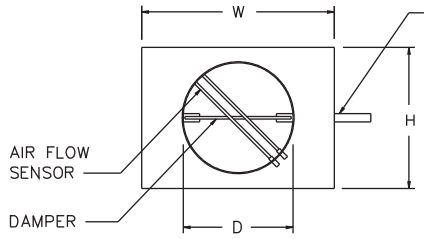
1. **Room sound levels shown include attenuation transfer functions shown above.**
2. **Data were obtained from tests conducted in accordance with ARI Standard 880-98.**
3. **Sound power levels are in decibels, re 10^-12 watts.**
4. **Dash (-) in space indicates sound and/or NC value is less than 10.**

** **Sound calculations are based on largest inlet size.**

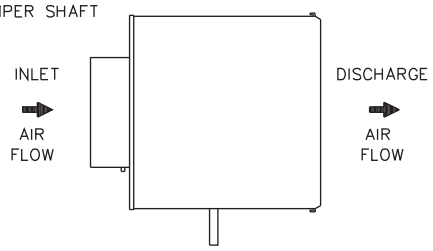
The results of this program are only an aid to the designer, and are not a substitute for professional services.
Carrier Corporation accepts no liability for the adequacy of any resulting design or installation.
All data subject to change without notice.

Dimensions

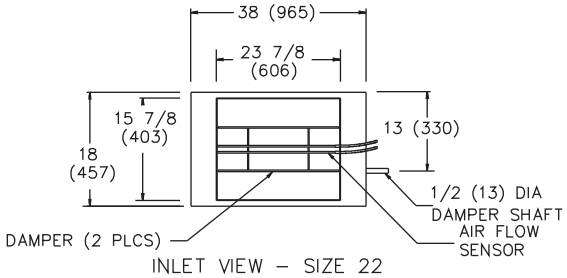
35E BASE UNIT



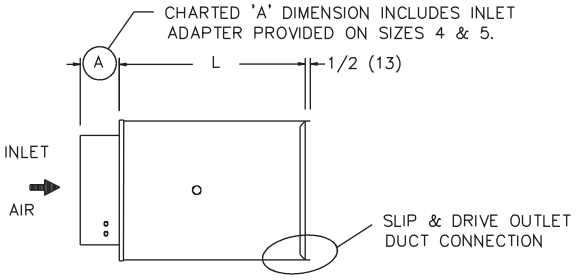
INLET VIEW – SIZES 4–16



TOP VIEW

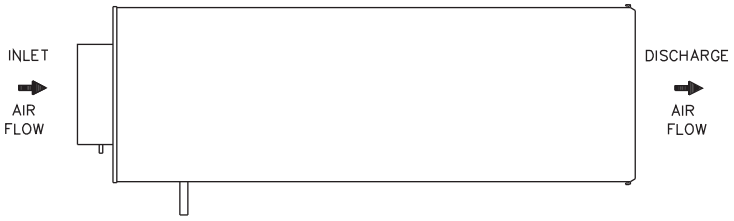


INLET VIEW – SIZE 22

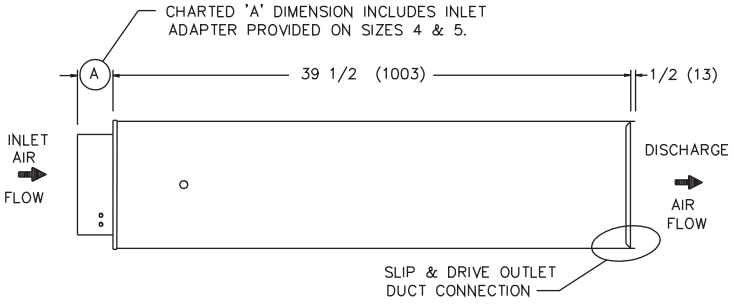


SIDE VIEW

WITH ATTENUATOR



TOP VIEW W/ATTENUATOR



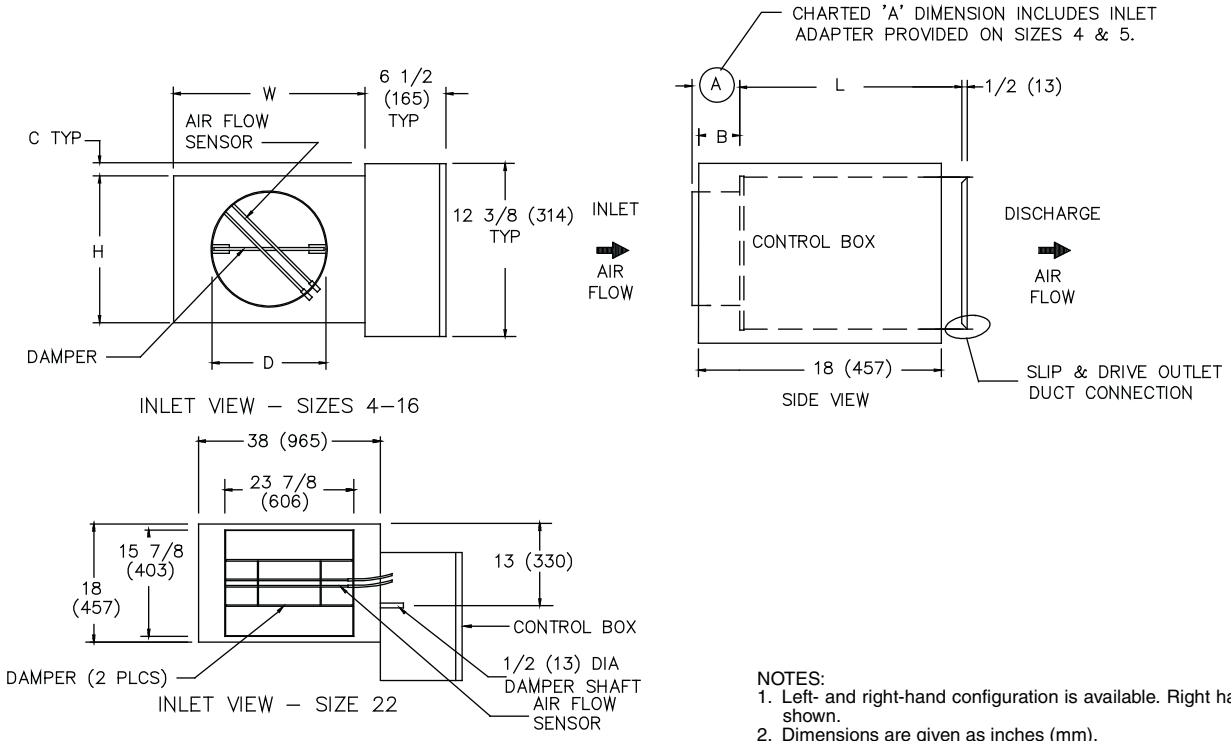
SIDE VIEW W/ATTENUATOR

NOTES:
1. Right-hand configuration shown. Left hand is available.
2. Dimensions are given as inches (mm).

35E BASE UNIT						
INLET SIZE	**NOM MAX CFM**	**L**	**W**	**H**	**A**	**D**
4	230	15 1/2	12	8	5 3/8	3 7/8
5	360	15 1/2	12	8	5 3/8	4 7/8
6	520	15 1/2	12	8	3 3/8	5 7/8
7	710	15 1/2	12	10	3 3/8	6 7/8
8	925	15 1/2	12	10	3 3/8	7 7/8
9	1200	15 1/2	14	12 1/2	3 3/8	8 7/8
10	1450	15 1/2	14	12 1/2	3 3/8	9 7/8
12	2100	15 1/2	16	15	3 3/8	11 7/8
14	2900	15 1/2	20	17 1/2	3 3/8	13 7/8
16	3700	15 1/2	24	18	3 3/8	15 7/8
22	7100	15	38	18	3 3/8	See Above.

Product Information is Subject to Change Without Notice.

35E WITH CONTROL BOX (ANALOG, VVT®, AND CCN UNITS)



NOTES:
1. Left- and right-hand configuration is available. Right hand is shown.
2. Dimensions are given as inches (mm).
3. A control box will be factory supplied for installation of Analog, VVT, CCN, or field-supplied DDC controls.

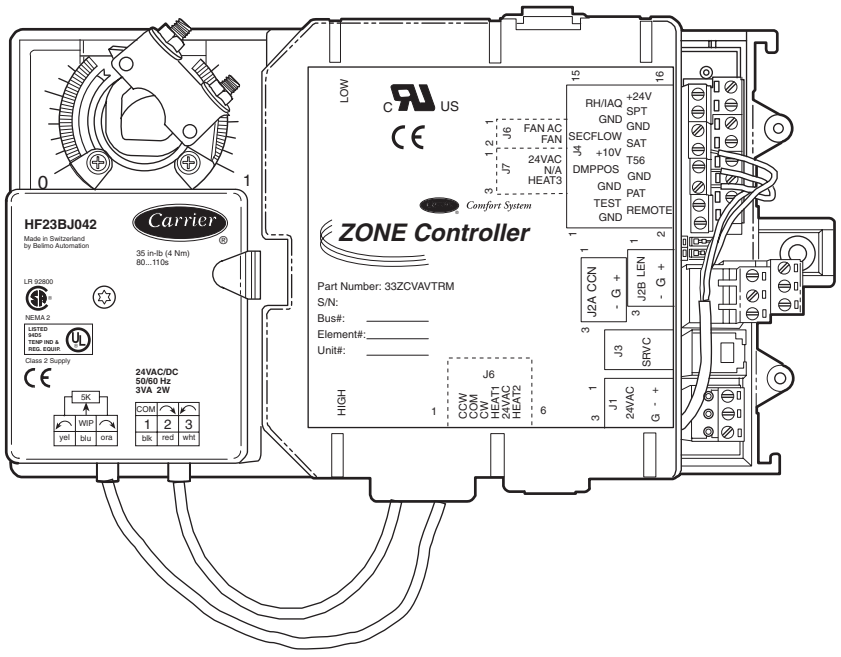
INLET SIZE	NOM MAX CFM	L	W	H	A	B	C	D
4	230	15 1/2	12	8	5 3/8	7 1/4	2 1/8	3 7/8
5	360	15 1/2	12	8	5 3/8	7 1/4	2 1/8	4 7/8
6	520	15 1/2	12	8	3 3/8	7 1/4	2 1/8	5 7/8
7	710	15 1/2	12	10	3 3/8	7 1/4	1 1/8	6 7/8
8	925	15 1/2	12	10	3 3/8	7 1/4	1 1/8	7 7/8
9	1200	15 1/2	14	12 1/2	3 3/8	5 1/4	—	8 7/8
10	1450	15 1/2	14	12 1/2	3 3/8	5 1/4	—	9 7/8
12	2100	15 1/2	16	15	3 3/8	5 1/4	—	11 7/8
14	2900	15 1/2	20	17 1/2	3 3/8	3 1/4	—	13 7/8
16	3700	15 1/2	24	18	3 3/8	3 1/4	—	15 7/8
22	7100	15	38	18	3 3/8	5 1/4	—	See Above.

Product Information is Subject to Change Without Notice.

Product Specification

Single Duct Air Terminal Zone Controller

Part Number 33ZCVAVTRM



The Single Duct Air Terminal Zone Controller provides dedicated control functions for single duct terminals with modulating heat or up to 2 stages of heat. The zone controller is part of the Carrier ComfortID system.

The 33ZCVAVTRM Single Duct Air Terminal Zone Controller provides the following features and benefits:

- provides Pressure Independent (VAV) control
- uses Proportional Integral Derivative (PID) control
- mounts directly onto VAV box damper shaft
- terminal fan control
- for terminals up to 9000 cfm or 3.4 sq. ft inlet (primary air)
- auxiliary heating control of modulating (floating) hot water, single-position hot water, single or two-stage electric, or zone perimeter heat
- quick and easy commissioning and balancing process
- automatic self calibration of airflow transducer
- capable of stand-alone operation, with supply-air temperature sensor
- actuator preassembled to housing
- capable of demand controlled ventilation support with field-installed IAQ sensor
- easy access to airflow sensor pneumatic connections
- uses Carrier Comfort Network (CCN) protocol
- capable of high-speed 38.4 kilobaud communications network operation
- 128 controller maximum system (must be located on same CCN bus segment)
- capable of zone humidity control (dehumidification) with field-installed humidity sensor
- Carrier Linkage System capability
- global set point and occupancy scheduling

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→ • provides a remote occupancy contact input for a field-supplied occupancy sensor
• capable of local set point adjustment with field-installed temperature sensor (with temperature offset)
• both controller housing and actuator are UL94-5V plenum rated

Features/Benefits

Flexibility for every application

The zone controller is a single duct, fan powered, variable air volume (VAV) terminal control with a factory-integrated controller and actuator. The zone controller maintains precise temperature control in the space by operating the terminal fan and regulating the flow of conditioned air into the space.

Buildings with diverse loading conditions can be supported by controlling reheat (single duct only) or supplemental heat. The zone controller can support single position hot water, modulating hot water, 2-stage electric, or perimeter heat.

Carrier Linkage System compatibility

When linked to a Carrier Linkage System, the zone controller provides numerous features and benefits such as weighted average demand for system operation, intelligent supply-air temperature reset, set point averaging, global set point schedule, and occupancy scheduling. Duct static reset for the air source is provided, based on terminal requirements.

Additional control features

The zone controller provides additional control features such as Occupied/Unoccupied scheduling initialized via the network. The zone controller offers override invoked from a wall sensor during unoccupied hours from 1 to 1440 minutes in 1-minute increments. Optional Indoor Air Quality (IAQ) or relative humidity monitoring and control are also available.

Simple actuator connection

The zone controller control assembly contains an integral VAV actuator assembly that is field mounted to the VAV terminal damper shaft, similar to the mounting of a standard actuator. The actuator is rated at 35 lb.-in. (3.95 N-m) torque, a 90-degree stroke, and provides second nominal timing at 60 Hz. The actuator is suitable for mounting onto a $^3/_8$-in. (9.5 mm) square or round VAV box damper shaft, or onto a $^1/_2$-in. (13 mm) round damper shaft. The minimum VAV box damper shaft length is $1^3/_4$-in. (45 mm). The zone controller is designed for vertical or horizontal mounting.

Ease of installation

The zone controller is provided with removable connectors for power and communications. The zone controller has non-removable screw type connectors for inputs. The removable connectors are designed so that they can be inserted one way so as to prevent installation errors. The zone controller also provides an RJ-14 modular phone jack for the Network Service tool connection to the module via the Carrier Comfort Network (CCN) communications.

An optional Conduit Box Cover (Part Number 33ZCCONBOX) provides for field wiring connection via conduit. The conduit box is designed to accept two $^1/_2$-in. (13 mm) EMT conduits.

User Interface

The 33ZCVAVTRM is designed to allow a service person or building owner to configure and operate the unit through the CCN user interfaces. A user interface is not required for day-to-day operation. All maintenance, configuration, setup, and diagnostic information is available through the Level II communications port to allow data access by an attached computer running Network Service Tool, ComfortVIEW™, or ComfortWORKS® software.

Specifications

Wiring connections

Field wiring is 18 to 22 AWG (American Wire Gage). The zone controller is a NEC (National Electronic Code) Class 2 rated device.

→ Inputs

- space temperature sensor
- primary air damper position
- airflow sensor (factory installed)
- field-installed remote wall sensor set point adjustment
- optional supply temperature sensor (required for heat and supply air monitoring)
- optional primary air temperature sensor (required for systems which do not utilize a linkage compatible air source)
- optional IAQ sensor
- optional relative humidity sensor
- optional remote occupancy contact input

Outputs

- internally factory-wired VAV actuator
- heating
  - modulating (floating) heat
  - up to 2 stages of heat
  - single position heat

Power supply

The power supply is 24 VAC ± 10% at 40 VA (50/60 Hz).

Power consumption

The power requirement sizing allows for accessory water valves and for the fan contactor. Water valves are limited to 15 VA on both single-position and modulating hot water. The fan contactor is limited to 10 VA (holding) each.

Accuracy

Terminal airflow (nominal cfm) is rated at 1-in. wg (249 kPa) measured velocity pressure. The zone controller is capable of controlling to as low as 10% or as high as 125% of nominal airflow with an accuracy of ± 3% (nominal) at any point within the range.

Hardware (memory)

FLASH EPROM

Differential pressure range

0 to 2.0 in. wg (0 to 498 kPa) maximum for the onboard flow sensor.

Specified sensing temperature range

The zone controller space temperature range is –40 to 245 F (–40 to 118 C). The zone controller has an allowable control set point range from 40 to 90 F (4 to 32 C) for heating and 45 to 99 F (7 to 37 C) for cooling.

Communications

The number of controllers is limited to 128 zones maximum, with a limit of 8 systems (Linkage Coordinator configured for at least 2 zones). Bus length may not exceed 4000 ft (1219 m), with no more than 60 devices on any 1000 ft (305 m) section. Optically isolated RS-485 repeaters are required every 1000 ft (305 m).

At 19,200 and 38,400 baud, the number of controllers is limited to 128 maximum, with no limit on the number of Linkage Coordinators. Bus length may not exceed 1000 ft (305 m).

Environmental ratings

Operating Temperature: 32 to 140 F (0° to 60 C) at 0 to 90% RH (non–condensing)

Shipping Temperature: –40 to 185 F (-40 to 85 C) at 0 to 90% RH (non–condensing)

Vibration

Performance vibration:

- 0.014-in. (0.356 mm) Peak-to-Peak displacement measured at 5 to 31 Hz
- 0.75 G measured at 31 to 300 Hz

Corrosion

Office environment. Indoor use only.

Approvals

- listed under UL 916-PAZX and UL 873
- conforms to requirements per European Consortium standards EN50081-1 (CISPR 22, Class B) and EN50082-1 (IEC 801-2, IEC 801-3, and IEC 801-4) for CE mark labeling
- UL94-5V plenum rated (housing and actuator)

Accessories

Conduit box — The 33ZCCONBOX conduit box provides two conduit connections to the zone controller for installations requiring the use of conduit due to local electrical codes.

Supply air temperature sensor — The 33ZCSENSAT supply air temperature sensor is required for heating applications or stand-alone operation. The sensor is optional on cooling only applications and is used for supply air monitoring. The sensor has an operating range of –40 to 245 F (–40 to 118 C).

Primary air temperature sensor — The 33ZCSENPAT primary air temperature sensor is required on a linkage coordinator zone controller if the zone controller is not using a CCN linkage compatible air source. The sensor is used to monitor the equipment's supply-air temperature. The temperature is broadcast to the zone controllers which receive information from the linkage coordinator. The sensor has an operating range of –40 to 245 F (–40 to 118 C).

Space temperature sensor with override button — The 33ZCT55SPT space temperature sensor with override button is required for all applications. The space temperature sensor monitors room temperature which is used by the zone controller to determine the amount of conditioned air that is allowed into the space.

Space temperature sensor with override button and set point adjustment — The 33ZCT56SPT space temperature sensor with override button and set point adjustment can be used in place of the 33ZCT55SPT space temperature sensor if local set point adjustment is required. A space temperature sensor is required for all applications. The space temperature sensor monitors room temperature which is used by the zone controller to determine the amount of conditioned air that is allowed into the space. The set point adjustment bar allows up to a ± 15 F (8 C) temperature adjustment by the room occupant.

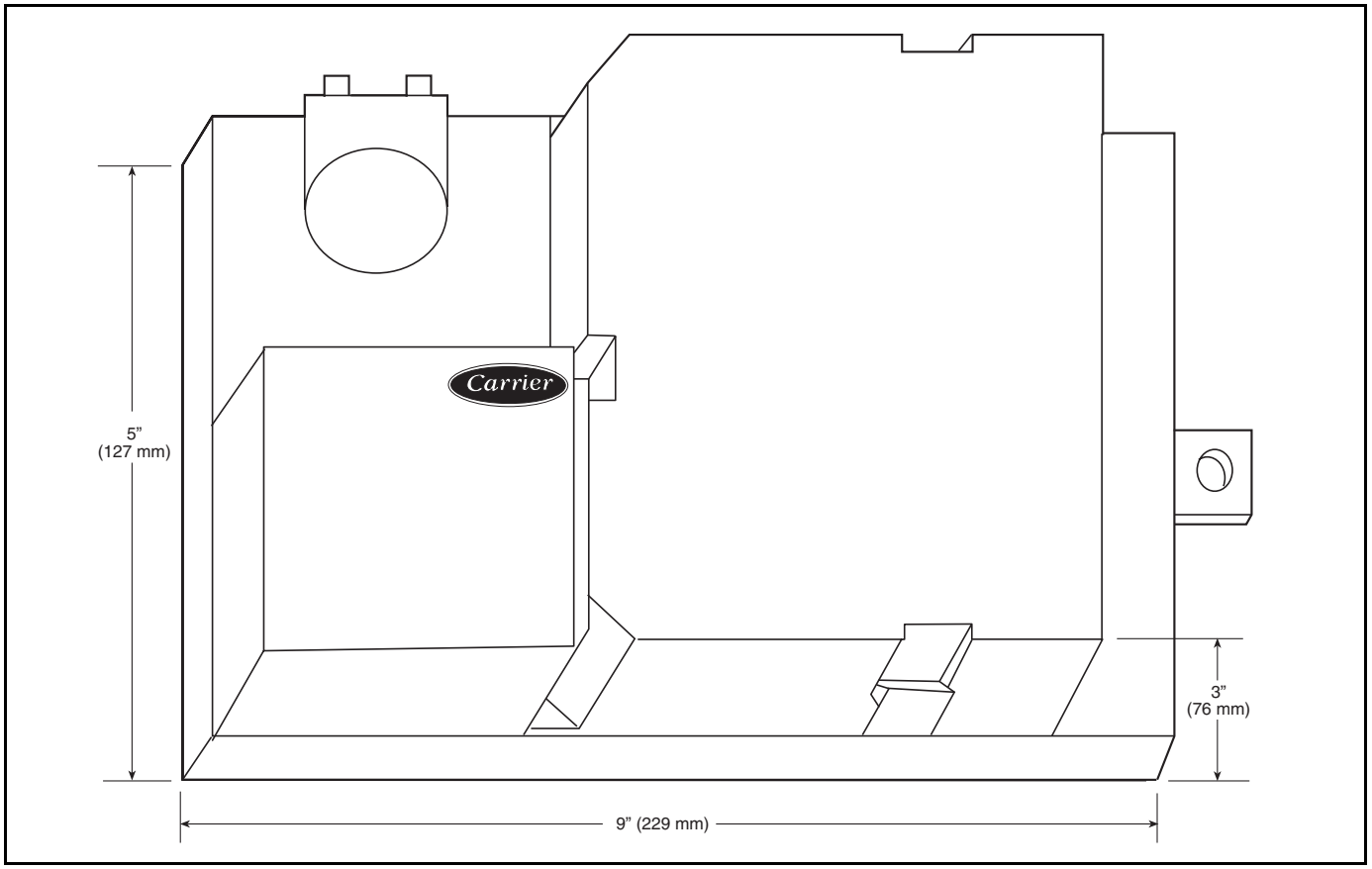
Relative humidity sensor — The 33AMSENRHS000 relative humidity sensor (indoor space) is required for zone humidity control (dehumidification).

NOTE: The relative humidity sensor and CO_2 sensor cannot be used on the same zone controller.

Indoor air quality sensor — Two indoor air quality (CO_2) sensors are available for optional demand control ventilation. The CGCDXSEN002A00 CO_2 Sensor is an indoor, wall mounted sensor with an LED display. The CGCDXSEN003A00 CO_2 Sensor is an indoor, wall mounted sensor without display.

NOTE: The relative humidity sensor and indoor air quality (CO_2) sensor cannot be used on the same zone controller.

Dimensions



Carrier COMFORT NETWORK

PRODUCT DATA

T-56 SPACE TEMPERATURE SENSOR WITH OVERRIDE AND SETPOINT ADJUSTMENT

The T-56 Space Temperature Sensor with Override and Setpoint Adjustment is designed to complement any interior decor. The sensor has the following advantages over conventional thermostats:

- Elimination of drift and calibration
- Reduced maintenance cost
- Accurate temperature sensing

The T-56 Space Temperature Sensor package consists of:

- (1) Space Temperature Sensor
- (2) 6-32" x 1" round head machine screws
- (1) Installation Instructions

The sensor's override button and temperature offset slide are provided for the control of features in the device to which the sensor is connected. The corresponding features must be present and enabled in the device to which the sensor is connected in order for the button and/or slide to have any effect.

The sensor's integral override button allows a tenant to signal a request for an override of the occupancy schedule currently controlling the HVAC equipment in that zone.

The sensor's integral temperature slide switch allows an occupant to adjust (bias) the heating and cooling setpoints upward and downward by a configured amount.

To support its temperature sensing, override, and setpoint adjustment functions, the sensor must be connected by a twisted, three-conductor, shielded cable to the CCN controller that it serves.

The sensor also includes a communication port for connection of a CCN Network Service Tool. A Network Service Tool connected to that port can communicate with all system elements on the CCN Communication Bus. Use of the communication port for the Network Service Tool requires an additional three-conductor shielded cable.

SENSOR APPLICATIONS

The wall sensor is used typically with the CCN Comfort Controller or ComfortID Zone Controller for temperature sensing, remote timed override and setpoint bias. Base setpoints for cooling and heating are set by the CCN ComfortVIEW or ComfortWORKS operator.

When used with CCN controllers that support timed override, the T-56 Space Temperature Sensor provides the following:

- Electronic measurement of space temperature
- Occupancy override by pushing the override button

The Tenant Billing Option can be used in conjunction with the CCN controllers to keep track of timed overrides initiated with the T-56 Space Temperature Sensor. Tenant Billing tracks a tenant's after-hours usage of a CCN system.

Specifications subject to change without notice

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Tab | BC1e

SPECIFICATIONS

Connections ..... labeled screw terminals
Operating Temperature .....32°F to 120°F
(0°C to 49°C)
Storage Temperature ..... -40°F to 160°F
(-40°C to 70°C)
Humidity ..... 0% to 95%, non-condensing
Dimensions ..... 4.51 in H X 2.75 in W X 1.15 in D
(11.46 cm X 6.98 cm X 2.92 cm)
Color ..... beige

THERMISTOR SPECIFICATIONS

Zero Power Resistance ..... 10K Ohms @ 25°C
Tolerance ..... +/- 0.2°C from 0 to 70°C
Dissipation constant ..... 3 mWatt/°C
Thermal time constant ..... 10 seconds
(for 63.2 % step change)

SETPOINT ADJUSTMENT SPECIFICATIONS

Cool .....0 Ohms (nominal)
Center ..... 50K Ohms (nominal)
Heat ..... 100K Ohms (nominal)

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